WHAT IS CLAIMED IS:

1. A UV curable coating composition reaction products of which are abrasion resistant, comprising:

at least one curable (meth)acrylate;

at least one photoinitiator which absorbs only in the UV range of the electromagnetic spectrum; and

an inorganic filler, at least a portion of which having a particle size in the range of 1 to 1,000 nm, wherein said coating is capable of maintaining about 95% of its post-cure gloss when subjected to about 100 cycles of grade 3 steel wool with a load of about 50 lbs applied per Federal Specification FF-W-1825.

2. The UV curable coating composition according to claim 1, wherein the particle size of said inorganic filler is less than about 50 nm.

3. The UV curable coating composition according to claim 1, wherein said at least one curable (meth)acrylate is selected from the group consisting of: urethane (meth)acrylates; polybutadiene (meth)acrylates; trimethylolpropane triacrylate; hexanediol diacrylate; alkoxylated hexanediol diacrylate; hydroxyl-bearing polyacrylate; hydroxyl double bond bearing polyester; tris (2-hydroxy ethyl) isocyanurate triacrylate; ethoxylated pentaerythritol tetraacrylate; and combinations thereof.

4. The UV curable coating composition according to claim 1, wherein said at least one photoinitiator comprises a benzophenone.

5. The UV curable coating composition according to claim 4, wherein said benzophenone is 1-hydroxy-cyclohexyl-phenyl-ketone.

6. The UV curable coating composition according to claim 1, wherein said at least one photoinitiator absorbs at wavelengths of about 333 nm or shorter.

7. The UV curable coating composition according to claim 1, wherein said inorganic filler comprises colloidal silica nanoparticles.

8. The UV curable coating composition according to claim 7, wherein said colloidal silica nanoparticles have a particle size of less than about 50 nm.

9. The UV curable coating composition according to claim 1, wherein said inorganic filler comprises silica particles which are spherical, non-porous, amorphous, non-agglomerated and monodispersed, said silica particles having a particle size in the range of about 10 nm to about 50 nm.

10. The UV curable coating composition according to claim 9, wherein said silica particles are present in an amount of about 30% to about 50% by weight of said composition.

11. The UV curable coating composition according to claim 1, further comprising a reactive diluent.

12. The UV curable coating composition according to claim 11, wherein said reactive diluent is N,N-dimethyl acrylamide.

13. The UV curable coating composition according to claim 1, further comprising at least one light stabilizer.

14. The UV curable coating composition according to claim 13, wherein said at least one light stabilizer is selected from the group consisting of hindered amine light stabilizers, hydroxyphenyltriazines, hydroxybenzotriazoles, and combinations thereof.

15. The UV curable coating composition according to claim 13, wherein said at least one light stabilizer is free of ethylenic unsaturation.

16. The UV curable coating composition according to claim 1, wherein said at least one photoinitiator is present in an amount of at least about 1% by weight of said composition.

17. The UV curable coating composition according to claim 1, wherein said at least one photoinitiator is present in an amount of no greater than about 12% by weight of said composition.

18. The UV curable coating composition according to claim 1, wherein said at least one curable (meth)acrylate is present in an amount of at least about 5% by weight of said composition.

19. The UV curable coating composition according to claim 1, wherein said at least one curable (meth)acrylate is present in an amount of no greater than about 85% by weight of said composition.

20. The UV curable coating composition according to claim 1, wherein said inorganic filler is present in an amount between about 30% and about 50% by weight of said curable (meth)acrylate.

21. The UV curable coating composition according to claim 11, wherein:

said at least one curable (meth)acrylate comprises trimethylolpropane triacrylate present in an amount between about 5% and about 85% by weight of said composition; and

said at least one reactive diluent comprises dimethyl acrylamide present in an amount between about 1% and about 30% by weight of said composition.

22. The UV curable coating composition according to claim 1, wherein the viscosity of said composition is at least about 5cps.

23. The UV curable coating composition according to claim 1, wherein the viscosity of said composition is no greater than about 3000cps.

24. A UV curable, abrasion resistant coating composition, comprising:

a photoinitiator which absorbs only in the UV range of the electromagnetic spectrum, said photoinitiator comprising 1-hydroxy-cyclohexyl-phenyl-ketone present in an amount between about 4.5% and about 5.5% by weight of said composition;

trimethylolpropane triacrylate with colloidal silica nanoparticles present in an amount between about 69% and about 73% by weight of said composition; and

dimethyl acrylamide present in an amount between about 22% and about 25% by weight of said composition.

25. A UV curable, abrasion resistant coating composition, comprising:

a nanospheric colloidal dispersion of silica in a (meth)acrylate matrix;

at least one reactive diluent; and

at least one photoinitiator which absorbs only in the UV range of the electromagnetic spectrum.

26. The UV curable coating composition according to claim 25, wherein said coating is capable of maintaining about 95% of its post-cure gloss when subjected to about 100 cycles of grade 3 steel wool with a load of about 50 lbs applied per Federal Specification FF-W-1825.

27. An abrasion resistant coated road reflector, comprising:

a road reflector having at least one surface, said surface having a coating thereon which comprises the reaction product of:

at least one curable (meth)acrylate;

at least one photoinitiator which absorbs only in the UV range of the electromagnetic spectrum; and

an inorganic filler, at least a portion of which having a particle size in the range of 1 to 1,000 nm.

28. A road reflector having an abrasion resistant coating, the abrasion resistant coated road reflector formed by the process of:

providing a road reflector having at least one surface;

applying a UV curable composition onto said surface,

wherein said UV curable composition comprises at least one photoinitiator which absorbs only in the UV range of the electromagnetic spectrum, silica having a particle size in the range of 1 to 1,000 nm, and at least one curable (meth)acrylate; and

exposing said coated surface to UV light to cure said coating composition.

29. The road reflector according to claim 28, wherein the step of applying a UV curable composition further comprises spraying said UV curable composition onto said surface to a coating thickness of about 1 to 2 mils.

30. A filter media having structural rigidity, formed by the process of:

providing a filter media having a surface;

applying a UV curable composition onto said surface;

wherein said UV curable composition comprises at least one photoinitiator which absorbs only in the UV range of the electromagnetic spectrum, silica having a particle size in the range of 1 to 1,000 nm, and at least one curable (meth)acrylate; and

exposing said coated surface to UV light to cure said coating composition.

31. The filter media according to claim 30, wherein the coated filter media has a stiffness of about 1600 mg.

32. A method for applying a UV curable, abrasion resistant coating to a surface, comprising the steps of:

spraying a UV curable composition onto the surface to a coating thickness of about 1 to 2 mils,

wherein the UV curable composition comprises at least one photoinitiator which absorbs only in the UV range of the electromagnetic spectrum, silica having a particle size in the range of 1 to 1,000 nm, and at least one curable (meth)acrylate; and

exposing the coated surface to UV light to cure the coating composition.

33. A method of imparting abrasion resistance to a surface, comprising the steps of:

providing an article having at least one surface;

applying a UV curable composition onto the surface,

wherein the UV curable composition comprises at least one photoinitiator which absorbs only in the UV range of the electromagnetic spectrum, silica having a particle size in the range of 1 to 1,000 nm, and at least one curable (meth)acrylate; and

exposing the surface to UV light to cure the composition to an abrasion resistant coating.